

Leycephyllum micranthum Piper, sp. nov.

Stems terete, densely puberulent when young, becoming glabrous; stipules lanceolate, striate, puberulent, 3 to 4 mm. long; petioles terete, channelled above, faintly striate-ridged, puberulent, usually longer than the leaflets; stipels apparently wanting; petiolules very pubescent; leaflets entire, firm membranaceous, broadly ovate to suborbicular, 3-nerved from the base, strongly acuminate and short-apiculate, broadly cuneate to rounded or even subcordate at base, sparsely puberulent above especially on the nerves, less so beneath, 8 to 10 cm. long; peduncles densely brown puberulent, floriferous from near the base, knotted with the pedicellar glands, 5 to 6 cm. long including the racemes of numerous flowers; bracts lanceolate, 3 mm. long, narrowed at base, long attenuate to apex, densely puberulent, much longer than the buds; pedicels shorter than the calyx; calyx densely brown puberulent, the tube 1.5 mm. long, the median lower tooth as long; corolla yellowish; standard 5 mm. long, puberulent on the outer side and densely covered near the tip with minute sessile glands; wings oblong, 5 mm., the auricle hook-like; keel as long as the wings, oblong-obovate, stipitate.

Type in the U. S. National Herbarium, no. 938783, collected at Las Vuel-tas, Tucurrique, Costa Rica, 635 meters altitude, January, 1899, by Adolpho Tonduz (no. 12951). The label notes "liane a tige aplatir; fl. jaunatres; fr. rouge et noir."

BOTANY.—*Aciachne*, a *cleistogamous grass of the high Andes*. AGNES CHASE, Department of Agriculture.

The genus *Aciachne* was described¹ by Bentham as dioecious, "Spicu-lae unisexuales, ♂ ignotae." There is one species, *A. pulvinata* Benth., "Andes of South America." Of the seven collections cited two, *Lechler* 1813 and *Mandon* 1287, are represented in the U. S. National Herbarium. Bentham states: "Notwithstanding the number of specimens from most of the above localities, I have been unable to detect any but female spikelets, which on some of them are numerous, often past flower, and showing only the persistent outer glumes. The males are probably on distinct plants and most likely with a different inflorescence, rendering it difficult to identify them. If that be the case, it is possible that the male of this, or an allied species may be represented by *Lechler's* specimens gathered at Gachapata in Peru a month earlier than the females above referred to, and distributed with the number 599. In these the leaves are longer, all erect, and very rigid,



Aciachne pulvinata. Fig. 1, spikelet $\times 10$; fig. 2, floret $\times 10$; fig. 3, palea $\times 10$; fig. 4, caryopsis crowned by old stigmas and stamens $\times 20$.

¹ Hook. Icon. Pl. 4: 44. pl. 1362. 1881.

1 to 3 in. long. The spikelets are several in a loose, slightly branched, rigid, erect panicle of 1 to 2 inches, the glumes precisely like those of the females, but enclosing three perfect stamens and the ovary reduced to an ovoid rudiment with two small points." The plate shows a flower with ovary and stigmas.

In the Genera Plantarum² "Spiculae unisexuales ♂ ignotae" is repeated. Hackel says³ of *Aciachne* "♂ Ae. unbekannt."

Practically all the numerous specimens of this grass preserved in herbaria have well-developed fruit. Professor A. S. Hitchcock, in a letter from Lima, Peru, writes, "A peculiar and wonderful grass is *Aciachne*. This in some places is the dominant or even the only grass on whole hills. It is not eaten by stock. It occurs in little mounds or patches, a deep green, dying out in the center and forming fairy rings. It is commonly supposed by the people there to be a moss. The spikelets are hidden among the short prickly leaves but the little sharp-pointed fruits rattle out easily and stick in the clothing."

The fact that the plant fruits so abundantly suggested that the mystery of the staminate form might be explained by cleistogamy. Professor Hitchcock's collections contained an abundance of fruiting material. A floret boiled in glycerine and water and carefully opened disclosed two empty anthers crushed with the old stigma at the summit of the caryopsis. The anthers are nearly 1 mm. long, larger than the anthers found in some cleistogenes. All florets opened contained anthers, some two, some three. Figure 4 shows the caryopsis with stigmas and anthers as they appear (slightly loosened by needles) taken from a boiled floret. In most cases the mass of crushed stigmas and anthers fell as the caryopsis was removed, but dissection showed 2 or 3 anthers in every case. The filaments were very short, in some cases none were found. The anthers must be nearly sessile, torn loose and carried upward by the developing fertilized ovary, and finally crushed with the old stigmas against the roof of the tiny chamber within the indurate lemma.

Bentham figures a large truncate palea and a pair of long lodicules. My dissections reveal a small hyaline deeply 2-lobed palea (figure 3) and only rudimentary lodicules. The lemma is very difficult to open and can not be spread out without cutting off the acuminate summit; even then it cracks lengthwise. It seems probable that among the dissections of several florets under the microscope Bentham

² Benth. & Hook. Gen. Pl. 3: 1143. 1883.

³ Engler & Prantl, *Pflanzenreich* 2²: 47. 1887.

found a part of a lemma from which the summit had been cut and mistook it for a palea, while the true palea split to the base in dissection was mistaken for lodicules.

We have not seen Lechler's no. 599, referred to by Bentham as possibly the staminate form of *Aciachne*. Growing with *Aciachne* at Cerro de Pasco, Peru, Professor Hitchcock found over-mature plants of *Dissanthelium calycinum* (Presl) Hitchc., which agree fairly well with Bentham's observations on Lechler's no. 599 and would appear to be the same species, though the glumes are abruptly pointed, not obtuse as in *Aciachne*.

Baillon in a note⁴ on the 1-flowered inflorescence of *Aciachne* refers to it as "polygame-dioique." His description of palea and lodicules ("glumelle interieure" and "glumellules") seems to be drawn from Bentham's illustration, but he found three stamens and an ovary with plumose styles, evidently in a young spikelet. He also observes a caryopsis but does not mention the included stamens. Pilger mentions⁵ *Aciachne* in a paper on monoecious and dioecious grasses.

ZOOLOGY.—*Snails of the genus Succinea from the Maritime Province of Sibera.* T. D. A. COCKERELL, University of Colorado. (Communicated by PAUL BARTSCH).

Dr. Leopold v. Schrenck, in his account of the mollusca of the Amur region of Siberia,¹ listed ostensibly one species of *Succinea*, namely *S. putris* Linnaeus. However, he divided this into forma *ventricosior* (*S. amphibia* Draparnaud) and forma *gracilior* (*S. pfeifferi* Rossmuessler), and if his identifications were correct, he had not only two species but two subgenera. Westerlund described two varieties of *S. putris* from Siberia, namely variety *firma* Westerlund, above whitish, beneath amber-color, whorls 4, length 16-17 mm., width 9-10 mm. (Ins. Briakowskij, n. lat. 70°, 39'), and variety *hazayana* Westerlund, red yellow, whorls 4-4.5, length 19.5-22 mm., width 9-10 mm. (Tunguska N. lat. 61°). *Succinea oblonga* var. *agonostoma* Kuester is said by Westerlund to occur in Germany, Sweden, and Siberia. The variety *elongata* Westerlund is synonymous with it. *Succinea chrysis* Westerlund is found, accord-

⁴ Bull. Soc. Linn. Paris 2: 1034. 1892

⁵ Bot. Jahrb. Engler 34: 386. 1904.

¹ *Reisen und Forschungen im Amurlande in den Jahren 1854-1856.* St. Petersburg, 1859-1867.